

REMARKS/ARGUMENTS

In a previous Action, the examiner objected to the drawings as not showing every feature of the invention specified in the claims. Fig. 2B has been amended to show the main storage 110 containing multiple queues as claimed in independent claims 1 and 14. In paragraph 2 of the DETAILED ACTION for the present application, the examiner has objected to the amendment to the specification as new matter. The amendment to the specification has been canceled in this Amendment.

In the DETAILED ACTION at Claim Rejections - 35 USC 112, claims 1-22, are rejected under 35 U.S.C. 112 with reference to the claim language "a main storage ...with more than one application server between images provided for virtual systems in said main storage." This claim language has been deleted in the present amendment.

In the DETAILED ACTION at Claim Rejections - 35 USC 103, claims 1-2, 4, 6, 10-23, 14-15, 17, and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Caldara et al. (hereinafter Caldara) in view of Provino et al. (hereinafter Provino).

As set forth in previous amendments, Caldara discloses a network input/output system for sending and receiving messages between a large scale computer system and associated communications networks. Caldara describes a main storage capable of establishing communication between application servers and application users wherein the main storage is only accessible by means of a single Operating System environment (Application Server). Only one input, output and control (UPICT) queue is defined. The Network Interface Controller is totally dedicated

to the single Operating System environment. Caldara describes the ability to control multiple I/O devices through the same interface. Caldara discloses multiple Network Interface Controllers (NIC) in a single Application Server see Col. 7, line 35). In Caldara, there is only one main storage unit 24 shown in Fig. 1, and there is no teaching or suggestion that the main storage unit may contain multiple queues corresponding to, or for access by, application servers. Also, there is no teaching or suggestion in Caldara that queues may be set up for more than one application server, an interface element capable of establishing processing communication between an application user, and using an interrogator operating independent of any application server for examining multiple queues in order to transfer data between the application server and the application user.

Thus, the claim 1 recitation "said main storage containing a plurality of queues corresponding to said plurality of application servers for retrieval and storage of incoming and outgoing data without causing interrupts in any running programs, said queues for retrieving data from and sending data to said application servers; an interface element capable of establishing processing communication between said plurality of queues and said at least one application user; an interrogator operating independent of any application server for examining said plurality of queues to transfer appropriate requests, responses and data between said application servers and said at least one application user" is not taught or suggested by Caldara.

Moreover, for the same reasons, the claim 14 recitation "a plurality of queues in said main storage for access by said application servers . . . said queues for retrieval from, and storage to, any of said application servers of incoming and

outgoing data while providing continuous running of programs without interruptions . . . an interrogator operating independent of any application server for interrogating said plurality of queues in said main storage simultaneously to process any received data or requests such that data or requests may be received from more than one application server" also is not taught or suggested by Calderale.

The examiner has cited Calderale's Network Interface as being the same as the claimed interface element and the interrogator. However, the I/O microcode and functions cited by the examiner all require interrupts to work correctly. In Calderale, interrupt codes and flags are essential to correct I/O operations. See Col. 10, lines 33-39: "If the interrupt flag associated with the NIOP Input Queue is set at Test Step 106, Yes path 108 is taken to Step 110, where the Network I/O Microcode presents an interrupt to the Exec 30. This interrupt is an indication that a Communications Program process needs to be activated to process the input message." See also at Col. 17, lines 26-28: "The Interrupt Code (IC) 320, in Bits 0-5 of Word 0, indicates that the CSW is a CPCSW when IC is zero." Also, Col. 17, lines 57-60: "If an error is detected on an NIOP Queue access, an NQCSW is written to the UPI Control Table and the Network Interface is disabled. For the NQCSW, the Interrupt Code (IC) 342 is set to sixteen decimal." And Col. 17, line 54 to Col. 18, line 4: "Bits 6-11 and Bits 13-14 must be zero. Bit 12 of the Internal Status is the Interrupt bit. If the Interrupt Flag has been set in the Interrupt Control Word, then an NQCSW is generated to return the status to the IP-based software. The Interrupt Control Word is used by the NIOP to determine if IP-based software requires a positive indication that the completion status has been stored to the NIOP Input Queue." Col. 18, lines 7-9: "The Interrupt Control Word must have zeros in

Bits 0-34 and the Interrupt Flag in Bit 35. If the Interrupt Flag is set when an input transfer is completed, then an NQCSW is presented to the UPICT (in addition to presenting completion status in the NIOP Input Queue)."

Thus, the prior art of record discloses neither "without causing interrupts in any running programs" as recited in claim 1 nor "providing continuous running of programs without interruptions" as recited in claim 14.

Claims 1 and 14 make clear that the claimed apparatus establishes processing communication with more than one application server. An interrogator is claimed for examining multiple queues to transfer appropriate requests, responses and data between multiple application servers and an application user, thus having the ability to manage queues from multiple different application servers, not just a single application server as in Caldarale, all without an interrupt to any running program. This ability is fully explained at page 16, lines 11-21 of the specification.

Further in Caldarale, an apparatus is disclosed for providing data transfer between main storage and only one application server. Claims 1 and 14 claim transferring data between multiple application servers wherein an interrogator examines multiple queues to transfer appropriate requests, responses and data between applications servers and application user(s).

Provino is directed to a virtual file system accessing subsystem for use in connection with a computer system connected in a computer network. The computers are of the conventional stored-program computer architecture, each having mass storage (see Col. 5, lines 3-5). There is no teaching or suggestion in Provino that the mass storage on any of the computers may be

separated into multiple queues, with an application server in a separate queue. Each computer in the network of Provino has only one operating system. The operating systems that are mentioned are the Unix operating system (Col. 2, line 26), MS-DOS and Windows (Col. 2, line 40) and Microsoft Windows-NT (Col. 5, line 49). As discussed above, one of the operating systems may reside at a time in the main storage of a computer of the network of Provino. Also, it is well known that each of the operating systems of Provino is interrupt driven. In Provino, if there is no interrupt, there is no communications. Previously supplied for the examiner's information, User's Guide Microsoft Windows Operating System Version 3.1, 1985-1993; pages 189, 190, describes how to set the Interrupt Request Line (IRQ), page 239 for the proper of the IRQ for the mouse, page 251 for the proper IRQ for printing from Windows, and page 263 for the proper IRQ for accessing a serial port. Also previously supplied was computer generated instructions for Windows 98, Microsoft Corp. 1981-1998, shows how to change the resource settings for a hardware device, and an example of the Interrupt Request (14) for a PCI Bus Master Controller and an Interrupt Request "06" for a Standard Floppy Disk Controller.

In Provino, each logical partition must rely on interrupts and I/O type operations to send data from one logical partition to another. As fully explained in the present application, this is not necessary because queues are set up in main storage, which queues are interrogated independent of the servers to transfer requests, responses and data between the application servers and application users.

In the present invention claimed in claims 1 and 14, the main storage contains multiple queues for retrieval and storage of incoming and outgoing data without causing interrupts in an

running programs (claims 1), a plurality of queues located in main storage for providing continuous running of programs without interruptions (claim 14). There is no teaching or suggestion in Provino that data may be retrieved or stored without interrupts, because in the operating systems of Provino, interrupts are required to retrieve or store data.

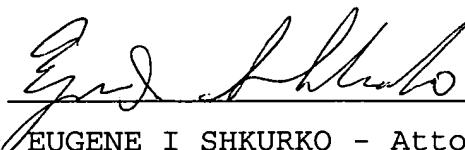
With respect to the Examiner's statement in paragraph 29, Applicants are responding to prior art Caldara and Provino as they apply to claim 1 OR claim 14, thus, Applicants are not addressing these references individually. Rather, Applicants address them in combination to the same extent that the Examiner asserts them in combination.

The Examiner further stated in paragraph 29, with reference to Caldara, "that other servers and thus queues are also connected to the main storage unit." This statement may be true when, for instance, there is one unique queue at one time in Caldara's main storage accessible by only one peripheral depending on which peripheral is attached. However, there is no teaching or suggestion in Caldara of storing multiple queues in main storage which queues are accessible by multiple servers and users.

Therefore, claims 1 and 14 are allowable over the prior art, and all claims depending therefrom. It is respectfully submitted that the remaining claims are allowable under 35 U.S.C. 103(a) over Caldara in view of Provino, and further in view of any combination of Carbillot, Brandt, Casper, or Leger.

It is respectfully submitted that the application is now in condition for allowance, which allowance is respectfully requested.

RESPECTFULLY SUBMITTED


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